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CRUISE REPORT: R.V. Lough Foyle

Cruise: LF/23/91 - Groundfish survey of juvenile demersal fish.

Dates: Departure: 16 September 1991, Belfast, 22h.00
Return: 27 September 1991, Belfast, 10h.00

Area of operation: Northwestern Irish Sea

Personnel

M. Armstrong	[SIC]	DANI	(SSO)
W. McCurdy		DANI	(SSO) (embarked in Dublin)
C. Burns		DANI	(ASO)
A. Hayes		DANI	(ASO)
J. Peel		DANI	(ASO)
S. Robinson		DANI	(TASO)
●ult		DANI	(TASO)

Objectives

1. To obtain indices of abundance of 0-year-old and 1-year-old whiting, cod, hake and haddock by means of a stratified trawl survey in the north-western Irish Sea, for use in ICES stock assessment procedures.
2. To carry out a series of comparative trawls with the MAFF vessel *Corystes* to investigate the relative fishing power of the two vessels.
3. To obtain information on patterns of abundance, size-composition and diet of groundfish species in the north-western Irish Sea.

Methods

Standard tows of a Rockhopper otter trawl covering 3 nautical miles at approximately 3 knots (1 hour duration) were carried out from R.V. Lough Foyle at the stations shown in Figure 1. Positions of tows are also given in Table 1. Species compositions of the catches were estimated either by sorting the entire catch (for small catches) or by means of a three-stage subsampling procedure involving removal of all large fish from the catch, removal of "medium" sized fish from a subsample of the catch, and finally a break-down of a smaller subsample of "small" fish to species level. Length frequencies were recorded for all species of fish caught. Otoliths were taken from up to 25 individual cod, whiting and hake in each catch. Similar sample-sizes of predatory fish were taken for removal of stomachs which were then frozen on board.

Comparative trawls between *Corystes* and Lough Foyle were carried out with *Corystes* fishing ahead of and slightly to one side of Lough Foyle. Tows were of 1-h duration, *Corystes* covering 4 n.miles at 4 knots, and Lough Foyle covering 3 n.miles at 3 knots, these being the standard tows for each vessel during groundfish surveys.

se narrative

Sunday 15 September

L.V. Lough Foyle departed Belfast harbour at 22h.00 on Sunday 15 September and proceeded south to occupy the first designated trawl station (83) off Portavogie.

Sunday 16 September

Trawl stations 83, 17, 70 and 80 were completed in deteriorating sea conditions with winds veering from southerly to westerly by the afternoon, and gusting force 8. Lough Foyle and Corystes commenced the first comparative tow at station 70 at 14h.35. The second comparative tow (station 80) was not successful because the Lough Foyle's gear fished incorrectly in the strong winds, catching only 11 kg of fish. On completion of work at approx. 18h.30, Lough Foyle anchored inshore south of Dundalk Bay.

Tuesday 17 September

Five comparative tows were successfully carried out at stations 203, 87, 88, 11 and 71, in good conditions with southwesterly to westerly winds blowing at 15-20 knots. Catches were good (400 - 750 kg), comprising mainly juvenile whiting, haddock, sprats, herring and Norway Pout. Station 71 was not occupied simultaneously by the two vessels owing to an engine fault on Corystes which delayed her tow by at least an hour. Lough Foyle anchored in Dundalk Bay for the night.

Wednesday 18 September

Station 73 was fished in good conditions, yielding a catch of nearly 100kg of juvenile whiting and sprat. The hydraulic pipe on the crane, which had been damaged and temporarily repaired on a previous Loch Minnie trip blew whilst hauling the codend. The survey was suspended whilst the vessel steamed to Kilkeel to pick up a spare part. The survey recommenced at station 89 at 13h.00. Two more stations (208 and 78) were completed before dusk. Winds throughout the day were generally W/NW, 20-25 knots.

Thursday 19 September.

Six tows were completed in good conditions, with SW winds blowing at 15-20 knots throughout the day. Stations 79, 75, 92, 91, 56 and 93 yielded 20 - 970 kg of fish, mainly whiting.

Friday 20 September

One tow (station 94) was completed by 09h.30 at which time the vessel proceeded to Dublin to take on water, berthing at the South Wall by 12h.45.

Saturday 21 September

Lough Foyle left Dublin at 07h.30 and commenced station 95 in a strong southerly wind. Conditions deteriorated rapidly with winds gusting force 8, preventing further trawling. Anchorage was found at the Skerries pending an improvement in the weather.

Sunday 22 September

With westerly gales forecast, Lough Foyle remained at anchor throughout the day.

Monday 23 September

Lough Foyle left anchorage at approx. 08h.00 and proceeded to station 90 which was fished at 09h.20. Southwesterly winds increased in strength throughout the day, reaching 25 knots by the afternoon. However,

ions 50, 98 (new), 96 and 51 were successfully fished after which the vessel proceeded to Ramsey Bay to lie at anchor during the night.

Tuesday 24 September

Despite strong southerly winds, Lough Foyle steamed towards the trawl stations off the west coast of the Isle of Man as there was an initial precast of moderating conditions. However, the forecast changed to imminent southerly gales and the vessel returned to Ramsey Bay in 40 knot winds to find shelter for the rest of the day. During the evening the vessel dodged southwards towards the next trawl station.

Wednesday 25 September

Trawl stations 216, 48, 99 (new), 46, 97 and 205 were completed in relatively calm conditions. During the evening the vessel drifted off Andrum Bay.

Thursday 26 September

Trawl stations 101 (new), 100 (new), 81, 86 and 35 were completed in good conditions. On completion of station 35 at about 19h.15 local time, Lough Foyle proceeded to an anchorage off Carrickfergus.

Friday 27 September

The vessel proceeded to Belfast harbour during the morning.

Results

Thirty seven trawl stations were completed with only one invalid tow (station 80), and no damage to gear. The positions of trawls are given in Figure 1 and Table 1. Catches of the most abundant species are given in Tables 2 and 3. Catch rates for selected species and size-ranges (corresponding approximately to age-classes) are shown graphically in Figures 2-8.

In general, the rockhopper trawl fished consistently and gave good catches. In comparison with the equivalent survey in 1990, there was an increased abundance of 0-group cod, haddock and whiting, and of 1-year-old hake, although the statistical significance of these differences has not yet been tested or compared with differences observed in surveys by the DOM vessel Lough Beltra and the MAFF vessel Corystes in the Western Irish Sea.

The series of comparative tows with R.V Corystes showed that with a headline lift approaching 3 m on the Rockhopper trawl, compared with only 1.8 m on the Granton trawl used by Corystes, the catches by Lough Foyle were consistently greater than those taken by Corystes. A statistical analysis of the differences in catch-rate of the two vessels will be carried out to allow incorporation of earlier MAFF survey data into the DANI time-series of survey estimates.

All data relating to trawl deployment and catch compositions were archived using the MAFF PC-based data capture system (T. Boon, MAFF, Lowestoft) and stored on 3.5" floppy discs.

Equipment performance

The rockhopper trawl and Furuno netsonde performed well throughout the survey. The Scanmar net monitoring system, however, gave frequent loss of signal from the headline unit and continued to exhibit a low charge capacity.

afety

n emergency drill was performed on Friday 20 September; all scientific
ersonnel followed the required procedures in a satisfactory manner.

cknowledgements

he successful achievement of the objectives of this survey were due in
o small measure to the usual friendly and efficient cooperation of the
hip's personnel, who are gratefully acknowledged.

cientist-in-charge

M. J. Armstrong Date *27/9/91*

Ship's Master

L. B. Sted Date *27. IX. 91*

DANI Line Manager

..... Date

ABLE 1. CRUISE LF/23/91 SEPT. 1991 DEMERSAL FISH RECRUITMENT
DETAILS OF TRAWL STATIONS and TOTAL CATCH

STN	TIME (GMT)	SHOOTING LAT.	POSN. LONG.	HAULING LAT.	POSN. LONG.	DEPTH (m)	DIST. TOWED	CATCH (kg)
83	7.40	54,23.8	5,18.0	54,20.3	5,17.0	85	3.10	240
17	10.55	54,08.1	5,30.1	54,05.3	5,33.4	56	3.20	328
70	13.35	54,02.3	5,45.2	53,58.8	5,47.0	42	3.00	371
80	16.00	54,01.2	5,52.1	53,58.0	5,52.9	33	3.00	11
203	6.30	53,57.6	5,49.7	53,54.5	5,48.7	42	3.00	411
87	8.55	54,01.0	5,43.3	54,03.3	5,39.7	47	3.00	757
88	11.00	53,59.9	5,40.8	53,57.8	5,38.7	69	3.00	384
11	12.05	53,54.7	5,45.1	53,51.4	5,45.5	58	3.00	502
71	15.40	53,53.8	5,49.7	53,54.7	5,54.8	44	3.00	456
73	6.40	53,50.2	6,03.8	53,52.5	6,06.2	29	3.00	857
89	12.00	53,50.3	5,55.6	53,47.0	5,54.3	41	3.00	760
208	15.05	53,50.7	5,44.0	53,48.0	5,47.1	63	3.00	422
7	17.20	53,45.9	6,03.6	53,48.5	6,05.3	30	3.00	653
79	6.20	53,44.0	6,01.0	53,40.9	5,58.3	35	3.00	837
75	8.30	53,39.6	5,50.3	53,42.1	5,49.5	58	3.00	321
92	11.00	53,34.3	5,53.6	53,36.1	5,55.3	45	3.00	489
91	12.50	53,33.0	5,47.6	53,29.1	5,45.5	65	3.00	972
56	14.35	53,29.7	5,40.8	53,42.5	5,43.8	71	3.00	331
93	16.20	53,31.0	5,50.5	53,28.5	5,48.55	72	3.00	833
94	7.10	53,23.5	5,47.1	53,21.0	5,47.0	57	3.00	695
95	9.40	53,31.8	5,38.9	53,34.3	5,34.8	90	3.00	72
90	8.20	53,36.5	5,41.5	53,41.4	5,39.4	87	3.00	100
50	10.55	53,44.1	5,20.9	53,47.0	5,20.0	81	3.00	373
98	12.50	53,50.7	5,14.6	53,53.6	5,12.7	66	3.00	335
96	14.50	53,49.5	5,06.9	53,51.9	5,06.1	65	3.00	254
51	16.40	53,51.3	4,58.2	53,54.4	4,58.7	73	3.00	519
215	6.30	53,55.9	5,12.1	53,58.5	5,09.7	62	3.00	278
48	8.25	53,58.6	4,58.0	54,01.2	4,59.3	70	3.00	201
99	10.20	54,06.0	5,02.7	54,08.7	5,00.3	81	3.00	733
46	12.00	54,09.2	4,55.4	54,12.3	4,57.6	79	3.00	218
97	14.00	54,17.9	4,53.9	54,21.4	4,55.7	80	3.00	150
205	17.20	54,14.5	5,18.8	54,11.8	5,20.9	65	3.00	131
101	6.40	54,10.2	5,18.8	54,07.4	5,22.5	66	3.00	308
100	9.15	54,09.5	5,39.0	54,07.1	5,41.4	27	3.00	527
81	11.45	54,12.0	5,23.9	54,15.3	5,24.4	50	3.00	173
86	15.05	54,35.0	5,25.5	54,38.5	5,26.9	39	3.00	274
35	17.15	54,42.9	5,41.1	54,44.9	5,37.6	21	3.00	433

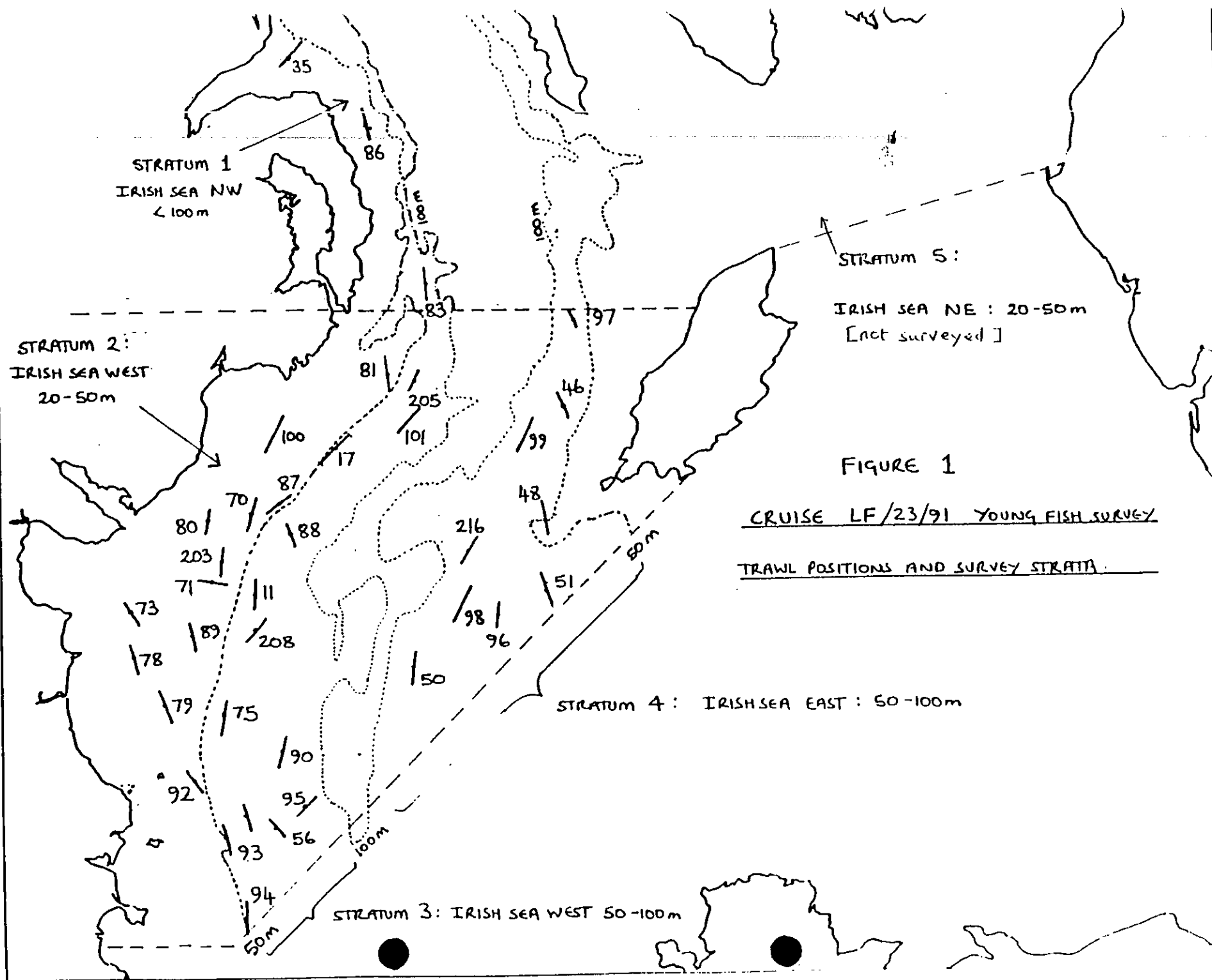
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Sept. 1991 demersal fish recruitment survey (LF/23/91)
 Catches in kg per 3 nm (approx 1 hour) towed

STN	Distance towed nm	COD	WHITING	HAKE	NORWAY POUT	POOR COD	HERRING	SPRAT
83	3.10	.00	102.10	2.24	19.10	29.11	.00	.07
17	3.20	.13	90.94	2.77	5.69	.33	114.84	67.50
70	3.00	.52	50.32	1.35	1.33	.95	31.40	198.00
80	3.00	1.24	1.59	.25	.06	.03	1.35	3.10
203	3.00	.58	267.00	1.31	16.54	.00	4.72	78.93
87	3.00	1.19	342.00	4.11	7.80	.00	91.80	14.20
88	3.00	.23	186.00	3.42	15.00	.66	92.03	57.47
11	3.00	.60	268.00	.00	64.60	.00	27.44	112.20
71	3.00	.43	211.00	.43	18.97	.00	3.60	132.80
73	3.00	2.66	598.00	.00	.00	.00	.00	216.00
89	3.00	.61	244.00	2.41	17.56	.00	8.89	458.00
208	3.00	1.42	203.00	2.69	34.31	1.33	138.00	13.94
78	3.00	.36	437.00	.00	1.43	.29	.45	161.20
79	3.00	12.32	587.00	3.40	9.82	3.85	8.56	48.19
75	3.00	2.41	128.80	3.82	80.20	.35	74.30	6.38
92	3.00	5.15	341.40	1.09	10.13	9.44	44.04	3.65
91	3.00	16.82	697.00	.25	12.20	4.09	162.50	.79
56	3.00	15.91	184.00	.48	13.39	6.19	19.42	.00
93	3.00	23.29	627.00	.14	46.40	4.54	5.63	.00
94	3.00	25.54	83.30	.00	80.27	11.73	3.60	.00
95	3.00	12.24	11.20	.45	12.37	1.26	1.14	.00
90	3.00	4.81	19.23	17.59	19.21	1.48	.03	.02
50	3.00	9.46	221.67	.00	63.70	1.16	.24	.11
98	3.00	.63	158.50	7.80	80.78	3.33	.77	.64
96	3.00	7.72	143.10	2.38	25.55	7.04	.99	.00
51	3.00	.80	102.60	9.35	36.70	42.60	.20	.00
216	3.00	.99	120.80	.86	63.70	.42	.45	2.30
48	3.00	3.10	12.06	12.62	3.00	108.60	5.00	.83
99	3.00	2.15	530.00	4.51	56.60	14.10	73.60	.00
46	3.00	1.58	98.80	3.44	48.63	8.69	7.08	.00
97	3.00	.94	44.09	6.48	32.00	42.70	.63	.00
205	3.00	.11	88.60	2.74	10.23	6.17	4.21	.45
101	3.00	1.29	222.00	10.20	14.70	3.46	3.12	.52
100	3.00	2.82	319.00	2.03	.23	12.34	2.53	.32
81	3.00	.13	113.35	.61	3.83	6.09	1.78	1.53
86	3.00	40.00	129.70	.40	.00	11.32	.04	.09
35	3.00	.68	215.30	.68	.00	148.00	17.00	17.80

Sept. 1991 demersal fish recruitment survey (LF/23/91)
 Catches in kg per 3 nm (approx 1 hour) towed

STN	Distance towed nm	DAB	PLAICE	HAD- DOCK	GUR- NARDS	SPUR DOGFISH	L.SP. NEPHROPS DOGFISH	
83	3.10	.00	.00	2.58	.00	4.20	33.87	17.83
17	3.20	.60	.00	3.38	.83	.71	11.25	.00
70	3.00	5.00	9.73	54.80	.12	.00	.00	.00
80	3.00	.04	.84	.03	.00	.00	1.02	.00
203	3.00	1.30	.17	26.70	1.51	.00	.00	1.22
87	3.00	.93	3.52	229.00	3.02	.00	.00	.44
88	3.00	.00	.00	2.94	.00	1.34	1.14	14.53
11	3.00	.00	.22	2.38	.13	.00	.00	4.83
71	3.00	2.22	.27	70.54	.70	.00	3.37	.00
73	3.00	3.27	.65	.00	5.63	.00	1.03	16.37
89	3.00	.00	.00	20.67	.00	28.00	.00	.00
208	3.00	.00	.00	3.19	.00	3.65	.00	13.60
78	3.00	12.42	1.47	5.34	.98	2.06	.00	14.10
79	3.00	50.45	11.16	56.06	3.71	.00	.00	.42
75	3.00	.16	.00	5.07	.12	10.78	.00	3.45
92	3.00	9.71	17.22	31.15	1.44	.00	.89	1.60
92	3.00	.64	4.58	56.17	.00	.00	.79	6.71
93	3.00	.00	.00	40.59	.00	.00	.00	44.05
93	3.00	.00	.76	105.00	.00	.00	.00	6.00
94	3.00	404.00	5.59	8.51	6.10	.00	.00	.00
95	3.00	2.74	.00	.04	.07	.00	.00	2.84
90	3.00	.00	.00	.05	.00	.00	.93	10.00
50	3.00	.42	.00	.35	.00	14.50	.00	25.30
98	3.00	.59	.00	.16	.13	45.00	.96	22.40
96	3.00	.64	.26	17.14	1.17	7.39	19.00	12.00
51	3.00	1.10	2.63	8.41	8.36	250.00	21.30	1.19
216	3.00	.00	.00	3.40	.32	27.00	2.55	45.40
48	3.00	.00	.40	.14	5.51	9.33	19.77	.47
99	3.00	.00	.00	7.42	.00	8.50	12.50	11.60
46	3.00	.00	.15	.46	.00	1.90	.00	26.60
97	3.00	.47	.53	3.46	.00	.00	.83	5.40
205	3.00	.00	.00	.18	.33	.00	2.38	6.50
101	3.00	.00	.00	8.46	.28	.00	7.00	10.54
100	3.00	70.00	33.00	46.00	3.07	.00	3.14	.25
100	3.00	.72	.29	4.49	.63	.00	.00	24.40
86	3.00	3.11	3.10	.65	2.12	.00	61.00	.40
35	3.00	1.50	1.30	11.80	4.80	.00	1.00	.00



WHITING 5-19cm

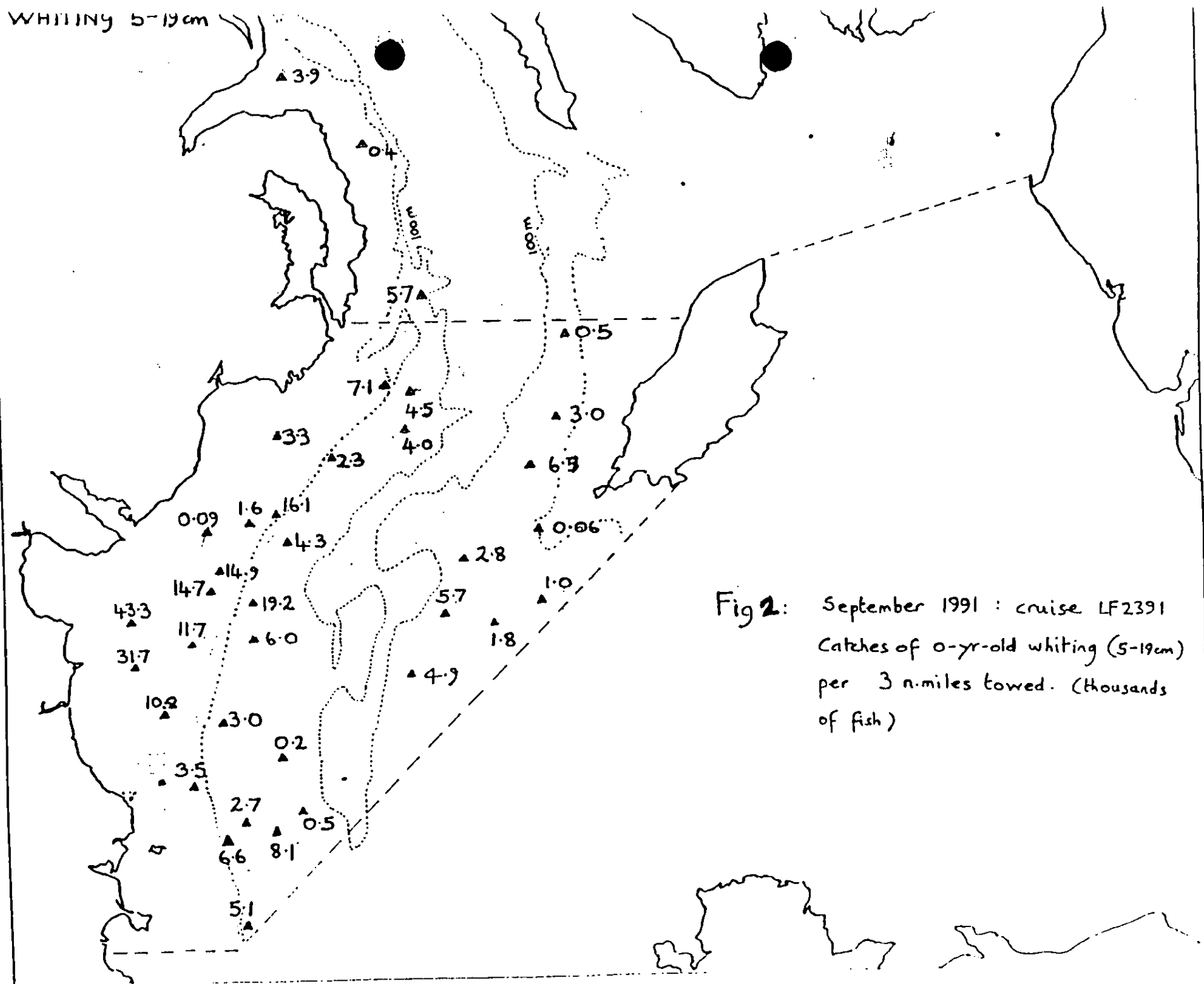
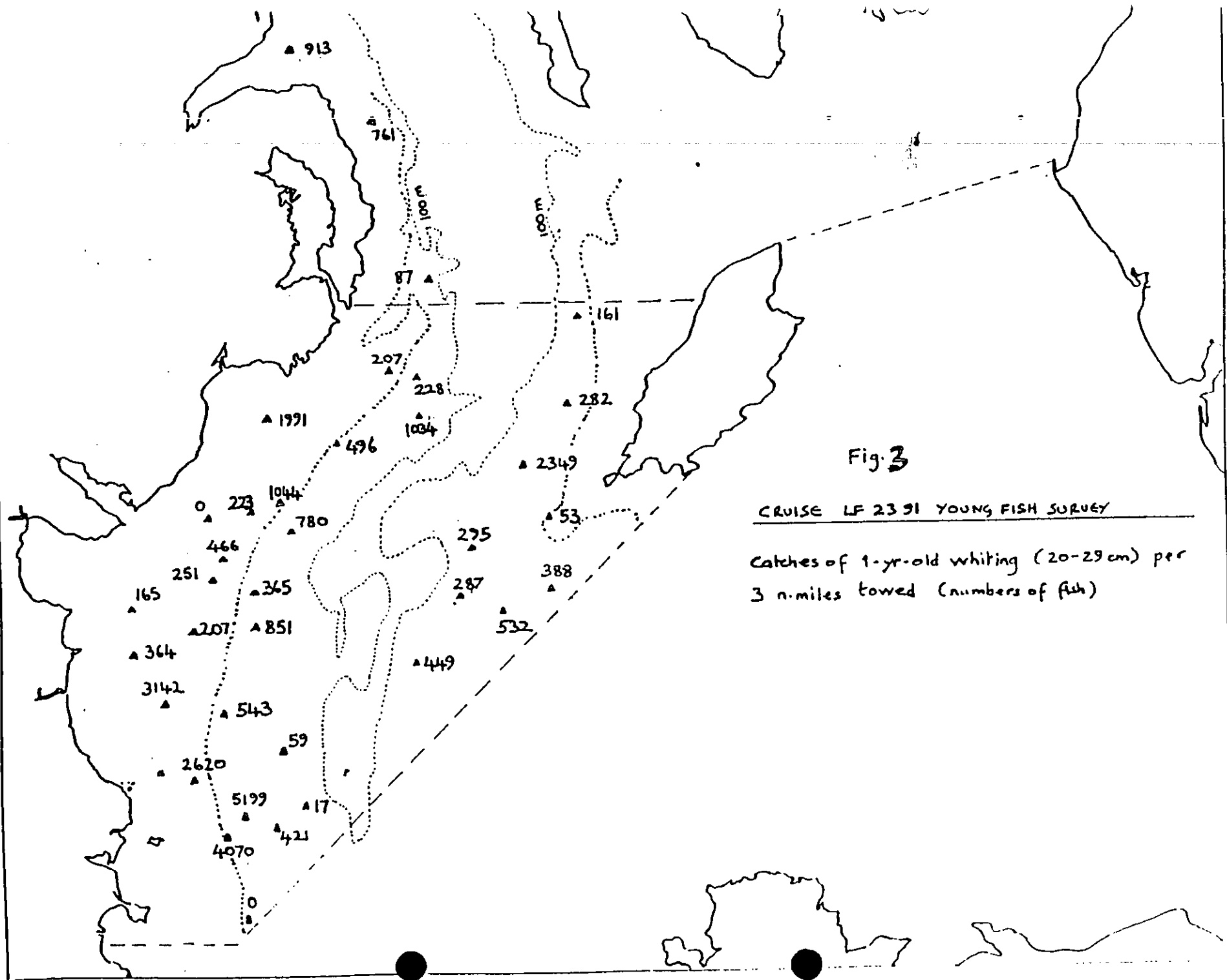
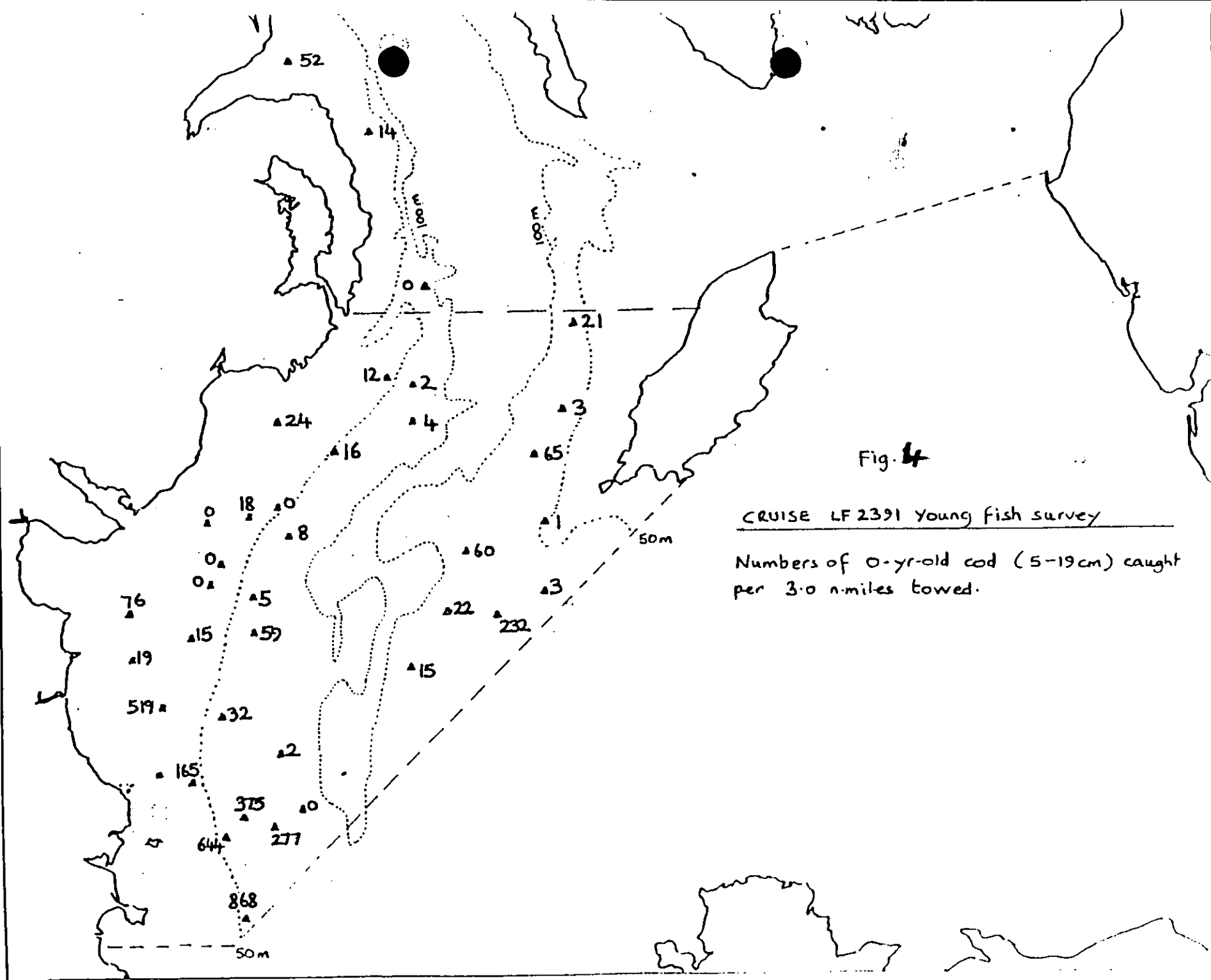


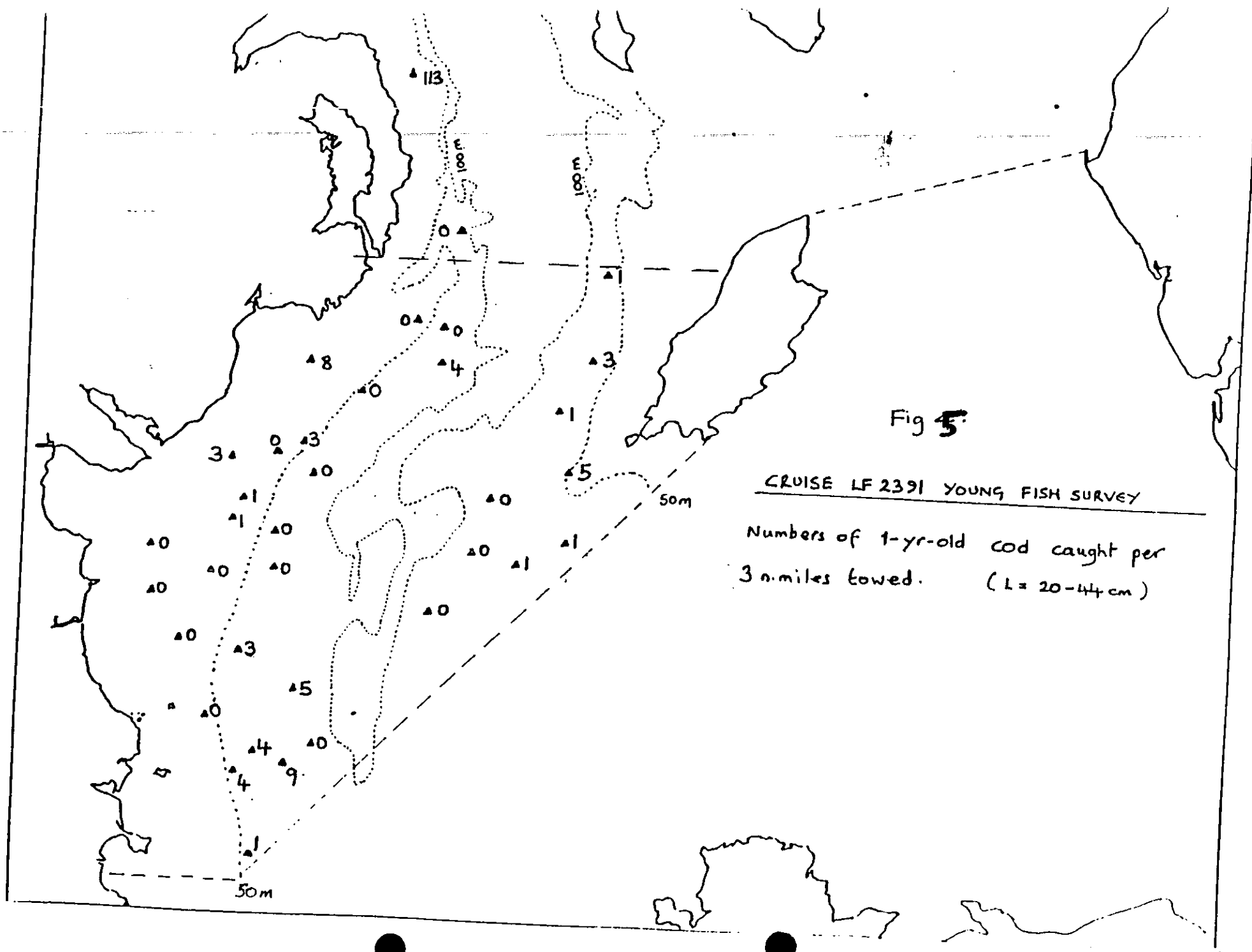
Fig 2: September 1991 : cruise LF2391
Catches of 0-yr-old whiting (5-19cm)
per 3 n.miles towed. (Thousands
of fish)

150

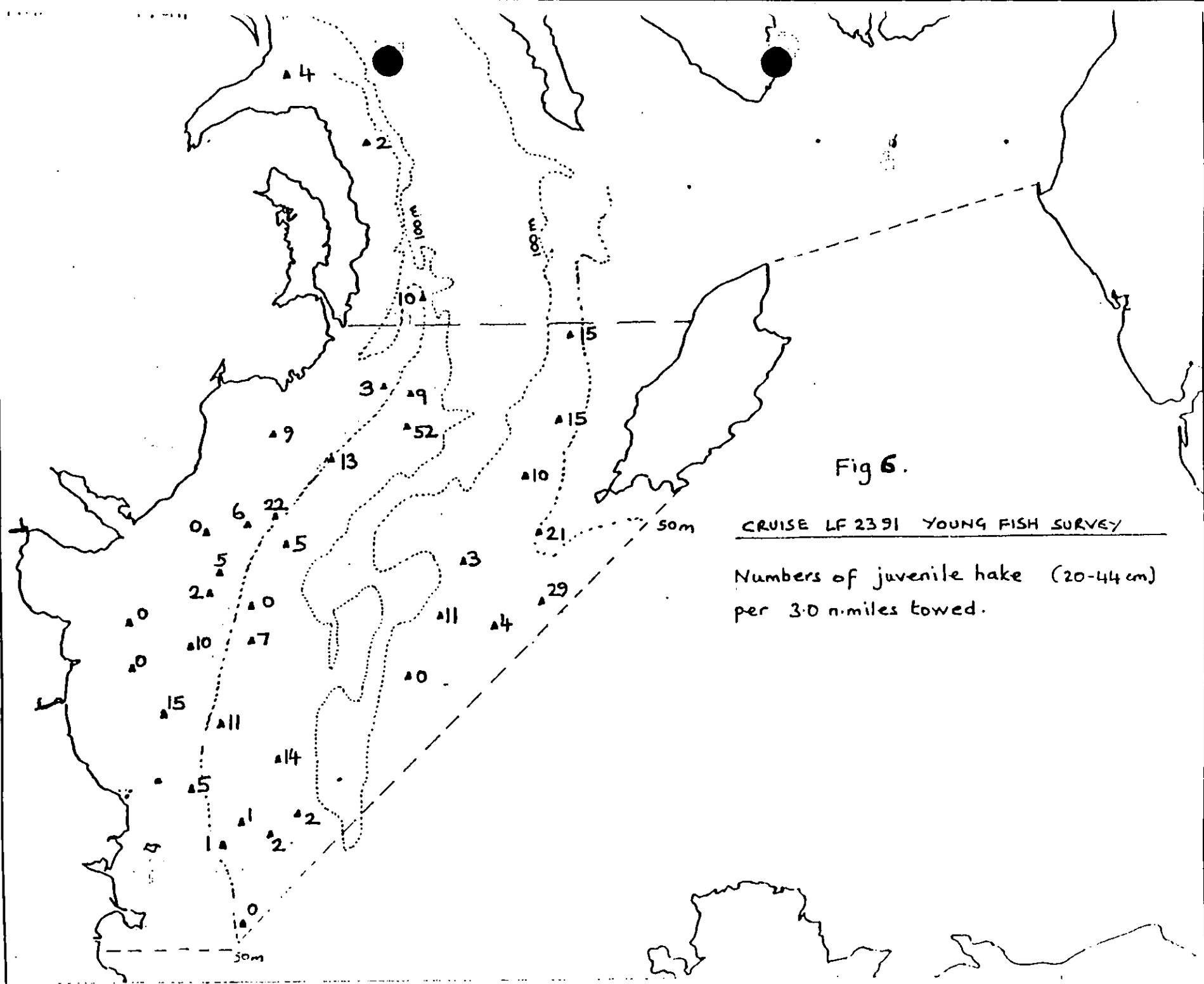


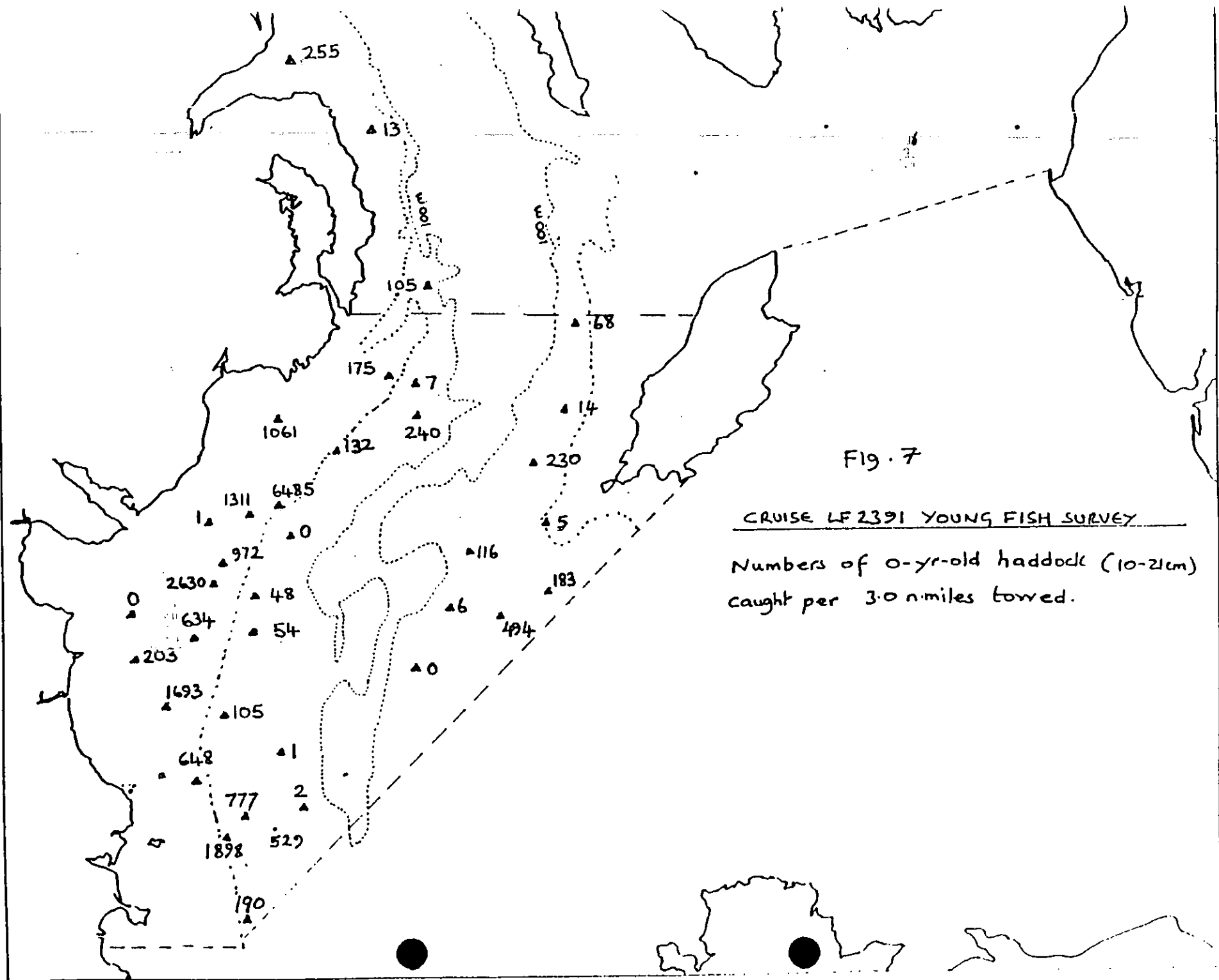


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16





HERRING (kg)

195

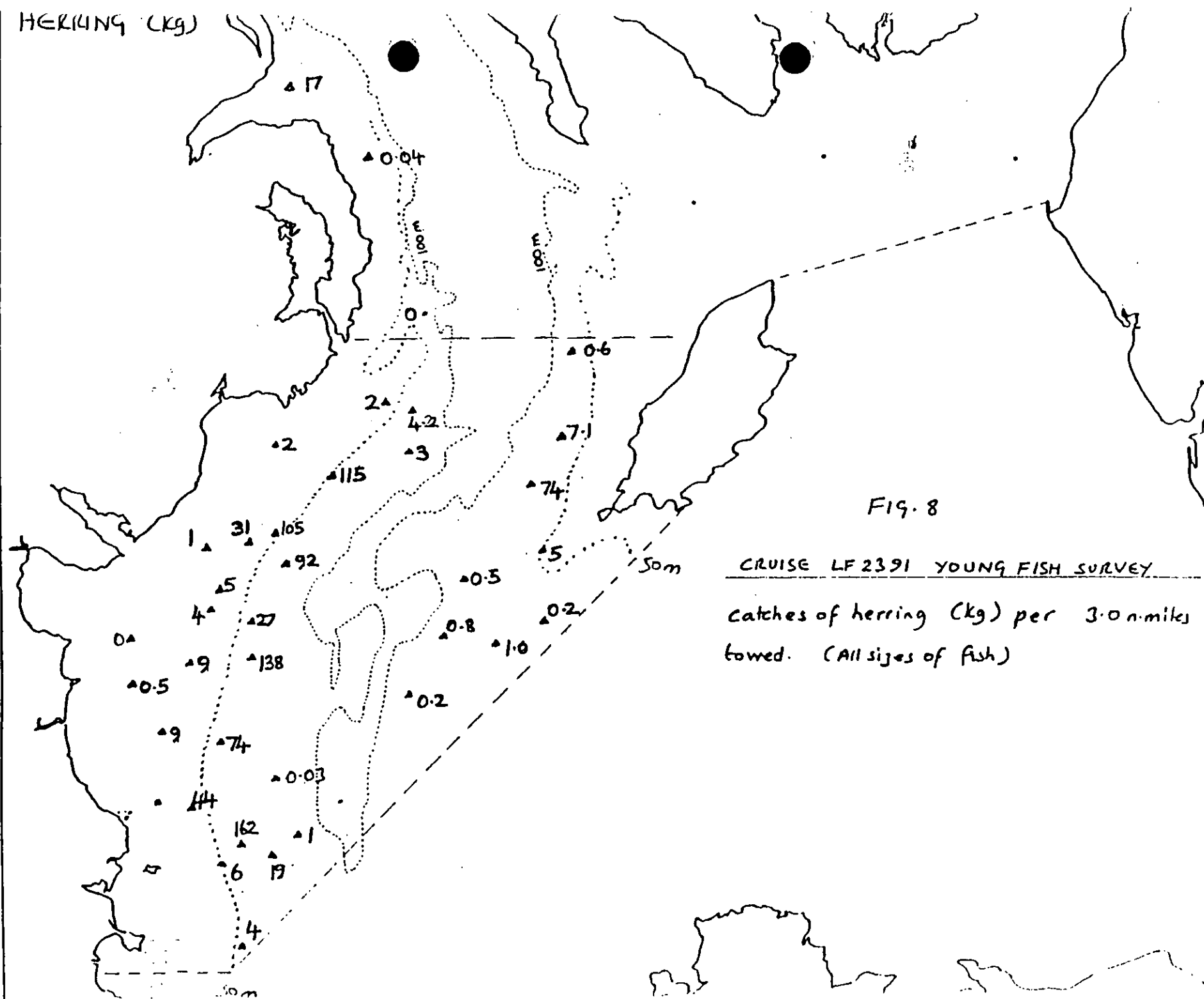


Fig. 8

CRUISE LF 2391 YOUNG FISH SURVEY

Catches of herring (kg) per 3.0 n.miles towed. (All sizes of fish)